

AMENDMENTS TO THE CLAIMS

Following is the current status of the claims:

Claim 1 (currently amended): A light generator comprising:

a blue laser for generating a first beam of blue light;
a first beamsplitter optically coupled to the blue laser
for splitting a second beam of blue light from the first beam of
blue light;

a second beamsplitter optically coupled to the first
beamsplitter for splitting a third beam of blue light from the
first beam of blue light;

a first upconversion laser optically coupled to the second
beamsplitter for generating a beam of green light from the third
beam of blue light; and

a second upconversion laser optically coupled to the second
beamsplitter for generating a beam of red light from the first
beam of blue light;

wherein at least one of the blue laser, the first
upconversion laser, and the second upconversion laser is a
solid-state laser;

wherein each of the first and second upconversion lasers
comprises:

a laser gain element;

a focusing lens optically coupled to the laser gain
element for focusing blue light onto the laser gain
element;

an input coupler optically coupled to the focusing
lens for transmitting blue light and for reflecting red
light or green light; and

an output coupler optically coupled to the laser gain
element for totally reflecting light generated by the laser
gain element back to the laser gain element;

wherein the laser gain element is a Pr:YALO crystal.

Claim 2 (cancelled)

Claim 3 (cancelled)

Claim 4 (currently amended): The light generator of ~~Claim 3~~
Claim 1 wherein the output coupler reflects pump energy that is not absorbed by the laser gain element back to the laser gain element to increase optical efficiency.

Claim 5 (cancelled)

Claim 6 (currently amended): The light generator of ~~Claim 3~~
Claim 1 wherein the input coupler is a plane mirror or a reflective coating on an end face of the laser gain element adjacent to the focusing lens.

Claim 7 (original): The light generator of Claim 1 further comprising a mirror optically coupled to the first beamsplitter for directing the second beam of blue light in a direction substantially parallel to the first beam of blue light.

Claim 8 (original): The light generator of Claim 1 further comprising a mirror optically coupled to the second beamsplitter for directing the third beam of blue light in a direction substantially parallel to the first beam of blue light.

Claim 9 (original): The light generator of Claim 1 further comprising at least one optical modulator to modulate at least one of the second beam of blue light, the beam of green light, and the beam of red light.

Claim 10 (original): The light generator of Claim 1 further comprising a wavelength selective device optically coupled to

the first beamsplitter, the first upconversion laser, and the second upconversion laser for combining the beam of red light, the beam of green light, and the second beam of blue light into a single beam of combined red, green, and blue light.

Claim 11 (original): The light generator of Claim 10 wherein the single beam of combined red, green, and blue light is substantially white.

Claim 12 (original): The light generator of Claim 10 wherein the wavelength selective device is a prism or a diffraction grating.

Claim 13 (currently amended): A light generator comprising:

- a blue laser for generating a first beam of blue light;
- a first beamsplitter optically coupled to the blue laser for splitting a second beam of blue light from the first beam of blue light; and

- an upconversion laser optically coupled to the first beamsplitter for generating a beam of red light and a beam of green light from the first beam of blue light;

- wherein at least one of the blue laser and the upconversion laser is a solid-state laser;

- wherein the upconversion laser comprises:

- a laser gain element for generating a beam of red light and a beam of green light from the first beam of blue light;

- a focusing lens optically coupled to the laser gain element for focusing the first beam of blue light onto the laser gain element; and

- an input coupler optically coupled to the focusing lens for transmitting blue light and for reflecting red and green light;

- wherein the laser gain element is a Pr:YALO crystal.

Claim 14 (cancelled)

Claim 15 (cancelled)

Claim 16 (cancelled)

Claim 17 (currently amended): The light generator of Claim ~~15~~ 13 wherein the input coupler comprises a plane mirror or a reflective coating on an end face of the laser gain element.

Claim 18 (original): The light generator of Claim 13 wherein the upconversion laser comprises a wavelength selective element optically coupled to the laser gain element for separating the beam of red light and the beam of green light.

Claim 19 (original): The light generator of Claim 18 further comprising an output coupler optically coupled to the laser gain element to partially reflect the beam of red light or the beam of green light.

Claim 20 (original): The light generator of Claim 19 further comprising an optical modulator to modulate at least one of the second beam of blue light, the beam of green light, and the beam of red light.

Claim 21 (currently amended): A light generator comprising:
a blue laser for generating a first beam of blue light; and
an upconversion laser optically coupled to the blue laser for generating a beam of red light and a beam of green light from the first beam of blue light;
wherein at least one of the blue laser and the upconversion laser is a solid-state laser;
wherein the upconversion laser comprises:
a laser gain element;

a focusing lens optically coupled to the laser gain element for focusing blue light onto the laser gain element;

an input coupler optically coupled to the focusing lens for transmitting blue light and for reflecting red and green light; and

an output coupler optically coupled to the laser gain element for partially reflecting red and green light and transmitting blue light;

wherein the laser gain element is a Pr:YALO crystal.

Claim 22 (previously presented): The light generator of Claim 21 wherein the first beam of blue light, the beam of red light, and the beam of green light are combined into a single collinear beam.

Claim 23 (original): The light generator of Claim 22 wherein the single collinear beam is substantially white.

Claim 24 (cancelled)

Claim 25 (cancelled)

Claim 26 (currently amended): The light generator of Claim ~~25~~ 21 wherein the input coupler comprises either a plane mirror or a reflective coating on an end face of the laser gain element.

Claim 27 (cancelled):

Claim 28 (currently amended): The light generator of Claim ~~25~~ 21 wherein the upconversion laser comprises a first wavelength selective element optically coupled to the laser gain element for separating the red light and the green light.

Claim 29 (original): The light generator of Claim 28 wherein the

first wavelength selective element is either a prism or a diffraction grating.

Claim 30 (original): The light generator of Claim 28 wherein the output coupler optically coupled to the first wavelength selective element to partially reflect red light or green light.

Claim 31 (original): The light generator of Claim 30 wherein the output coupler reflects blue light to increase optical efficiency of the laser gain element.

Claim 32 (original): The light generator of Claim 30 further comprising a modulator to modulate at least one of the second beam of blue light, the beam of green light, and the beam of red light.

Claim 33 (original): The light generator of Claim 30 wherein the upconversion laser comprises a second wavelength selective element optically coupled to the output coupler for combining at least two of the beam of red light, the beam of green light, and the beam of blue light into a single beam of combined light.

Claim 34 (original): The light generator of Claim 33 wherein the single beam of combined light is substantially white.

Claim 35 (currently amended): A light generator comprising:

- means for generating a first beam of blue light;

- means for splitting a second beam of blue light from the first beam of blue light;

- means for splitting a third beam of blue light from the first beam of blue light;

- means for generating a beam of green light from the third beam of blue light; and

- means for generating a beam of red light from the first

beam of blue light;

wherein at least one of the means for generating is a solid-state laser;

wherein each of the means for generating a beam of green light and the means for generating a beam of red light comprises:

a laser gain element;

means for focusing blue light onto the laser gain element;

means for transmitting blue light and for reflecting red light or green light produced by the laser gain element; and

means for partially reflecting light generated by the laser gain element back to the laser gain element;
wherein the laser gain element is a Pr:YALO crystal.

Claim 36 (cancelled)

Claim 37 (cancelled)

Claim 38 (currently amended): The light generator of Claim ~~37~~ 35 wherein the means for partially reflecting light generated by the laser gain element back to the laser gain element reflects pump energy that is not absorbed by the laser gain element back to the laser gain element to increase optical efficiency.

Claim 39 (cancelled)

Claim 40 (currently amended): The light generator of Claim ~~37~~ 35 wherein the means for transmitting blue light and for reflecting red light or green light produced by the laser gain element is a plane mirror or a reflective coating on an end face of the laser gain element adjacent to the focusing lens.

Claim 41 (original): The light generator of Claim 35 further comprising means for directing the second beam of blue light in a direction substantially parallel to the first beam of blue light.

Claim 42 (original): The light generator of Claim 35 further comprising means for directing the third beam of blue light in a direction substantially parallel to the first beam of blue light.

Claim 43 (original): The light generator of Claim 35 further comprising means for modulating light optically coupled to at least one of the second beam of blue light, the beam of green light, and the beam of red light.

Claim 44 (original): The light generator of Claim 35 further comprising means for combining the beam of red light, the beam of green light, and the second beam of blue light into a single beam of combined red, green, and blue light.

Claim 45 (original): The light generator of Claim 44 wherein the single beam of combined red, green, and blue light is substantially white.

Claim 46 (original): The light generator of Claim 44 wherein the means for combining is a prism or a diffraction grating.

Claim 47 (currently amended): A light generator comprising:
 means for generating a first beam of blue light;
 means for splitting a second beam of blue light from the first beam of blue light;
 means for generating a beam of red light from the first beam of blue light; and

means for generating a beam of green light from the first beam of blue light;

wherein at least one of the means for generating is a solid-state laser;

wherein the means for generating a beam of red light and a beam of green light from the first beam of blue light comprises:

a laser gain element;

means for focusing the first beam of blue light onto the laser gain element; and

means for transmitting blue light and for reflecting red and green light produced by the laser gain element;

wherein the laser gain element is a Pr:YALO crystal.

Claim 48 (cancelled)

Claim 49 (cancelled)

Claim 50 (cancelled)

Claim 51 (currently amended): The light generator of Claim ~~49~~ 47 wherein the means for transmitting comprises a plane mirror or a reflective coating on an end face of the laser gain element.

Claim 52 (original): The light generator of Claim 47 wherein the means for generating a beam of red light and a beam of green light comprises means for separating the beam of red light and the beam of green light.

Claim 53 (original): The light generator of Claim 52 further comprising means for partially reflecting the beam of red light or the beam of green light.

Claim 54 (original): The light generator of Claim 53 further comprising means for modulating at least one of the second beam

of blue light, the beam of green light, and the beam of red light.

Claim 55 (currently amended): A light generator comprising:

means for generating a first beam of blue light and a second beam of blue light;

means for generating a beam of red light from the first beam of blue light; and

means for generating a beam of green light from the first beam of blue light;

wherein at least one of the means for generating is a solid-state laser;

wherein the means for generating comprises:

a laser gain element;

means for focusing blue light onto the laser gain element;

means for transmitting the blue light and for reflecting red and green light produced by the laser gain element; and

means for partially reflecting the red and green light produced by the laser gain element and for transmitting blue light;

wherein the laser gain element is a Pr:YALO crystal.

Claim 56 (original): The light generator of Claim 55 wherein the second beam of blue light, the beam of red light, and the beam of green light are combined into a single collinear beam.

Claim 57 (original): The light generator of Claim 56 wherein the single collinear beam is substantially white.

Claim 58 (cancelled)

Claim 59 (cancelled)

Claim 60 (currently amended): The light generator of Claim ~~59~~ 55 wherein the means for transmitting comprises either a plane mirror or a reflective coating on an end face of the laser gain element.

Claim 61 (cancelled)

Claim 62 (currently amended): The light generator of Claim ~~59~~ 55 wherein the means for generating a beam of red light and a beam of green light from the first beam of blue light comprises means for separating the red light and the green light.

Claim 63 (original): The light generator of Claim 62 wherein the means for separating the red light and the green light is either a prism or a diffraction grating.

Claim 64 (original): The light generator of Claim 59 wherein the means for partially reflecting the red and green light produced by the laser gain element and for transmitting blue light is optically coupled to the means for separating the red light and the green light to partially reflect only one of the red light or the green light.

Claim 65 (original): The light generator of Claim 64 wherein the means for partially reflecting the red and green light produced by the laser gain element and for transmitting blue light reflects blue light to increase optical efficiency of the laser gain element.

Claim 66 (original): The light generator of Claim 64 further comprising means for modulating at least one of the second beam of blue light, the beam of green light, and the beam of red light.

Claim 67 (original): The light generator of Claim 64 wherein the means for generating a beam of red light and a beam of green light comprises means for combining at least two of the beam of red light, the beam of green light, and the beam of blue light into a single beam of combined light.

Claim 68 (original): The light generator of Claim 67 wherein the single beam of combined light is substantially white.